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IB-1366

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Charles R. Piskoti et al.		
Ser. No.:	09/518,989	Group No:	1754
Filed:	03/03/2000	Examiner:	S. Hendrickson
For:	Carbon Based Thirty Six Atom Spheres		

Commissioner of Patents and Trademarks
Washington, DC 20231

RULE 132 DECLARATION OF ALEX K. ZETTL

I, Alex K. Zettl, hereby declare that:

I am a citizen of the United States and a resident of Kensington, California.

In 1978 I received a B.A. degree in physical science from the University of California Berkely (UCB), and in 1981 a M.S. degree in physics, and in 1983 a Ph.D. degree in physics, both from the University of California Los Angeles (UCLA).

Since 1983 I have been a professor at UCB, starting as an Assistant Professor in 1983, then an Associate Professor, and then a Full Professor in 1987. Since 1986 I have also been a senior scientist at the UC Lawrence Berkeley National Laboratory (LBNL).

I am a coinventor of the present case.

In the office action of 06/17/2003 in the present case, the claims are rejected as anticipated or as obvious over the Service article and/or the Nature article discussed therein. The Examiner states that "the Nature reference is 'by another.'"

The Nature article does not describe work by another inventive entity but describes the invention made by the present inventors and claimed in the present case.

The Nature article, vol. 393, pp. 771-774 (25 June 1998), entitled "C36, a new carbon solid" was coauthored by C. Piskoti, J. Yarger, and me.

C. Piskoti and I are two of the six coinventors of the present case. The other four coinventors were not included as coauthors in the Nature article, because they were theoreticians and the Nature article was directed to the experimental aspects of the work. Articles have been published by the theoreticians without including the experimentalists. As stated in the acknowledgement at the end of the article, the C36 study was a joint experimental/theoretical collaboration with the other four coinventors. All six of us signed a declaration as coinventors in the present case.

J. Yarger was not a coinventor of the present case. He was a PostDoc in another research group who was an expert in operating the NMR machine. After the inventors had produced the C36 material and done initial NMR studies, he produced further NMR spectra to confirm the prior NMR spectra produced by the inventors. He was included as a coauthor because some of the spectra were produced by him.

The Examiner has maintained the rejection of Claims 1-5, 10 over the Stankevich article on the basis that it reported properties of C36 and therefore "it appears to have been made and isolated." This rejection is clearly unsupportable. The article is purely a theoretical article, as is clear from reading it; the abstract states that the structures were studied by the well-known theoretical "topological and valence approaches" and page 169 first three lines indicate that the work is directed to modeling the structures and prognosis of properties from the models. The properties are calculated properties, not measured properties. Nothing in the article suggests that the material was produced.

The Service article clearly shows that the rejection based on Stankevich is in error and that the present invention was a major breakthrough. "New Fullerene Rounds Out the Family" indicates that researchers at UCB, i.e. Applicants of the present invention, have isolated a new fullerene with 36 atoms. Service further states that while researchers had known for years that carbon gases contained C36, they had never been able to isolate and examine it. Service further quotes James Heath at UCLA, one of the discoverers of fullerenes in 1985, as saying that the UCB work is "really heroic." Thus the Examiner has no basis to reject claims to Applicants' isolated solid state C36 material.

The Examiner has also maintained the rejection of the claims for containing subject matter not sufficiently described to show possession of the claimed invention, i.e. the 400 torr He pressure in the arc process should be included in Claim 6.

The 400 torr He limitation is a specific detail of the particular experiments carried out by the inventors with a particular apparatus and is contained in Claim 7. However, the application shows one skilled in the art that Applicants had possession of the broader method of Claim 6. As shown by Service, researchers knew that the carbon-rich gases for C60 production also contained traces of C36, but too small to isolate. Applicant has shown that the process of making soot can be controlled to enhance C36. There are numerous statements on pages 5-6 to that effect: "Bulk quantities of C36 are produced by a modified Kratschmer-Huffman arc plasma technique. The technique has been modified to enhance the production of C36." "The synthesis of C36 is very sensitive to operational parameters, notably helium pressure." One skilled in the art is informed that the standard processes should be modified to increase C36, and one particularly important parameter is pressure. The specific 400 torr He pressure is just illustrative; no one would expect the same pressure

to be the ideal pressure for every system. One skilled in the art would vary the pressure to find the optimum pressure on the basis of the description in the present case. Thus the examiner should withdraw the rejection.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Alex. K. Zettl — Date: Aug. 28, 2003

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